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**CELL-BASED MULTIPLEXING ADME ANALYSIS USING FOCUSED FLUID FLOW**

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**ABSTRACT OF THE DISCLOSURE**

The invention relates to methods and devices for conducting multiplex assays for determining absorption, distribution, metabolism, and/or excretion (ADME) properties of an analyte. The method and device provide the ability to study analytes by controllably flowing, in laminar flow, an analyte in an analyte stream over a substrate having a plurality of substantially parallel individual test lanes on the surface thereof, wherein each test lane comprises a plurality of living cells immobilized therein. Changes, when present, in the analyte, the cells, or both, are detected and thereafter correlated to an ADME property of the analyte.